

# Radio Basics: How to Choose Your First Radio

(and some other interesting stuff)

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# Agenda

- Quick intros
- Stuff to consider
- New vs. used
- Research
- Mobile, handheld, & base station options
- Antenna (very) basics
- Retail & used sources

# Intros and “Why Amateur Radio?”

- Intros
  - How long involved with ham radio?
  - Reason for getting involved?
- In order to select your first (or next) radio, ask yourself why you became a ham in the first place....
- What do you know (and what do you *need* to know)?
- What was it that drew you to the hobby?
- What are your goals?
- Two goals of this presentation:
  - Provide basic information about ham radios & how they're used
  - Equip you with tools to make good decisions when getting your first radio (and second, and third? 😊)

# Getting a Radio: Considerations

- ☐ New or Used?
- ☐ Collector?
- ☐ Occasional operator?
- ☐ Public Service Oriented?
- ☐ Contesting?
- ☐ Emcomm?
- ☐ Fixed, Mobile or Portable?
- ☐ Apartment, covenant-restricted, rural?
- ☐ VHF, UHF, HF, Satellite?
- ☐ Digital modes?
- ☐ How much are you able or willing to invest? 😊

# New vs. Used

| Benefits of Used           | Problems with Used                   |
|----------------------------|--------------------------------------|
| More bang for the buck     | You might inherit problems           |
| More 'track record'        | Not latest technology                |
| Might get it from a friend | Might not be your friend for long! 😊 |

- Usually no warranty

# New vs. Used (cont.)

| Benefits of New               | Problems with New                                           |
|-------------------------------|-------------------------------------------------------------|
| Latest technology             | No track record                                             |
| Usually has a warranty        | Usually more expensive                                      |
| Accessories available         | Simple or aftermarket alternatives may not be available yet |
| Often smaller                 | Smaller isn't always best                                   |
| Feature set is often "better" | Improvements may be small increments                        |

# Research Before You Buy

- Save yourself a lot of grief
- Remember, opinions are like belly-buttons...
  - Look for personal experience
- QRZ.COM
- eHam.net
- CQ-amateur-radio.com
- ARRL.org
- Various Yahoo Groups
- Retail sites such as universal-radio.com, hamradio.com, aesham.com, texastowers.com and others
- Local hams, clubs, ARES/RACES team, etc.

# Mobile vs. Handheld vs. Base

- How will you operate?
- Can you afford several types?
- In General
  - HT's have lowest power, but most utility
  - Mobiles can be used as a base station (need power supply)
  - Many base station rigs are also transportable
  - HT's can be connected to an amp for more power (less common)
  - So can mobiles
  - So can bases
- Output Power: 50/20/10/5 W (144 MHz),
- 35/20/10/5 W (430 MHz)

# Handie-Talkies (“HTs”)

- Mono-banders usually least expensive
  - Note: Don’t unnecessarily limit yourself
- Most have a 5 Watt output on 2M
- Dual-banders are probably the most popular
  - Option: Dual receive (more expensive)
  - Single receive (can be competitive with mono-banders)

# Models in the \$120 - 140 range

(Get a copy of QST!)



Icom IC-V80  
Yaesu VX-170



Wouxun



Kenwood TH-K2AT



# Higher End HTs - \$300-500 Range



# A New HT Paradigm...

- Guess the price...
- \$500?
- \$200?
- \$100?
- \$50?

Get one of these too!



USB Programming Cable for Baofeng UV-5R UV-3R+ Two way Radio With Driver CD  
by Baofeng  
★★★★☆ 2,075 customer reviews | 80 answered questions  
#1 Best Seller in Two-Way Radio Battery Chargers

List Price: ~~\$45.99~~  
Price: **\$4.99 & FREE SHIPPING**  
You Save: **\$11.00 (69%)**

**Note:** Not eligible for Amazon Prime. Available with free Prime shipping from [other sellers on Amazon](#).

**In Stock.**  
Ships from and sold by [Garrett Smither](#).

**Estimated Delivery Date:** May 6 - 22 when you choose Standard at checkout.  
Size: **1 PACK**

## BaoFeng UV-5RE Two Way Radio

by [BAOFENG](#)

★★★★★ 800 customer reviews | 66 answered questions

List Price: ~~\$48.99~~

Price: **\$29.99** ✓ **Prime**

You Save: **\$19.00 (39%)**



# Mobiles (think “your car”)

- More power than an HT (some are 100W!)
- Can be used mobile, base or transportable with the appropriate power source
- Can be cost-competitive with HTs
- Easier to read displays than HTs
- Usually more features and capabilities
- Normally UHF/VHF, some HF...
- Big 3: Kenwood, Icom, Yaesu (Vertex)
- New to the field: Wouxun & Baofeng (China), inexpensive

# Some FM Mobiles, Basic to Fancy

- Icom's IC 2200H D-Star Upgradeable
- \$125 range



# True Dual-band operations in the sub-\$600 range

- Icom's D-Star Upgradeable IC-2820



# High-end Kenwood with Built-in TNC, APRS in the mid-\$500s    TM-D710E



Yaesu – Vertex, Basic 2-meter for ~\$125! FT-1900



# Quad-Band Operations (two at a time) for under \$400!

- FT-8900R 29, 50, 144, 440 FM operations



# What about the Antenna?

- HTs: Rubber Duck = “Dummy Load”
  - Get another one or two, depending on your use
- Mobiles: Buy a good antenna
  - Magnetic mounts okay, often not as good as permanent mounts
  - Center of metal mass tends to be best
  - Aesthetics may dictate placement! 😊

# More Toys – The “Sound to Light” boxes

- The Icom 706 series. One of the most successful lines in amateur history – and the original! – IC-706MK2G



# Icom's Mobile “Everything” Rig

- The IC-7000 has DSP and a host of cutting edge features. In the \$1200-1300 range



# Kenwood Does STL Bigger

- Kenwood's TS-2000 does satellite well, PLUS has a built-in antenna tuner and other cool stuff. In the \$1600 range, it's competitive if you consider the features.



# Yaesu's FT-817 is Portable

- The very popular FT-817 series has 5W ("QRP") output, is easily transported. Internal battery, many accessories... ~\$600



# Marketed as the “ARES” radio

- FT-897 has ability to install a tuner, power supply or batteries inside the radio,
- Big, but more powerful than the 817 series. A good compromise radio for home and portable operations....and around \$900 new



# Entry HF

- Icom's IC-718. Audio DSP. Good performance for not much more than an SWL rig. Typically in the low \$600s



# Kenwood's Entry HF

- At around \$1160, but includes 6 Meter operations, a remote face plate and built in auto-tuner!
- TS-480 SAT



# Don't Forget Yaesu!

- The FT-450D has a built-in auto-tuner, DSP and a very compact size. Sells for about \$850 (HF + 6M)



# Other Things to Consider for HF

- HF Rigs also require some of the following:
  - A power supply
  - An antenna tuner (if not built in)
  - A very LARGE antenna (as compared to what's needed for UHF/VHF)
  - Depending on your intentions...
    - Automatic keyer or straight key
    - Sound card interface
    - Computer
    - Coax (maybe a lot)
    - Etc.

# A Very Short Antenna Intro...

- Antennas are grouped in four basic categories:
  - Beams: Typically most expensive (towers, etc.)
  - Verticals: Less money than beams on average
  - Wire: Usually the least expensive
  - Dish: For Microwave frequencies

# Verticals

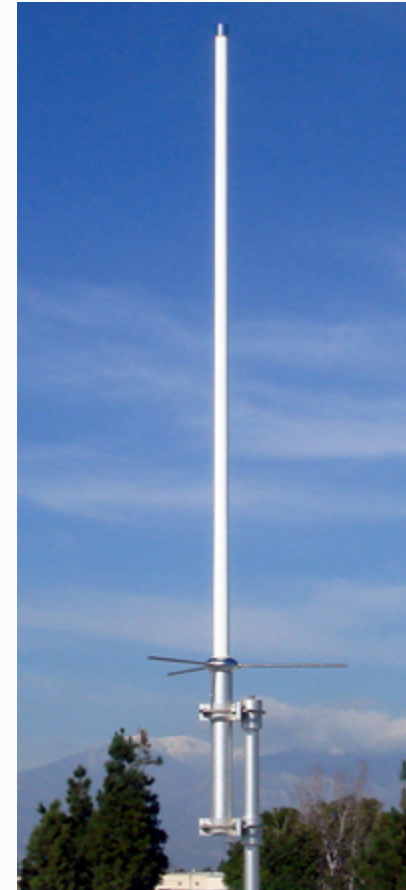
- Include ground planes
- Mobile antennas
- Common for VHF and UHF base stations
- Can be ground-mounted for HF work
- Can be phased to give some directionality
- Vary from inexpensive to very expensive
- Consider whether a vertical is right for you



- Cushcraft R-8 Vertical
- Costs around \$530

# Or Maybe You Start With Something Simpler...

- 2M/440 "base station" antenna – Comet GP-3, ~\$90
- Some stuff you'll want to consider:
  - Gain:
    - 146MHz 4.5dBi
    - 446MHz 7.2dBi
  - VSWR: 1.5:1 or less
  - Max Power: 200 watts
  - Length: 5' 11"
  - Weight: 2 lbs. 12 oz.
  - Mounting Mast Dia: 1 1/2-2 1/4"
  - Connector: SO-239
  - Construction: Heavy-duty fiberglass



# Beams

- Best directionality
- Satellite work
- HF beams are large, typically require a tower and a rotator
- The complete install can be very expensive and a lot of work



- How much room and money do you have? 😊

# Wire Antennas

- Most commonly used on HF
  - Require at least two support points
  - Work better higher off the ground, depending...
  - Can be somewhat directional but not as much as a beam
  - Fun to experiment with and a cost effective way to enjoy HF operation without a lot of investment
  - Don't forget NVIS! Regional HF communications...
  - A sad antenna story... learn from me!

# Great... So Where do I Buy?

- Back to original questions...
- New?
- Used?
- Budget?
- Aside from traditional retail
  - Ebay
  - Flea markets
  - Other hams, word of mouth
  - Join a club!

# Common Retailers

- Ham Radio Outlet – [www.hamradio.com](http://www.hamradio.com)
  - Closest store is in Portland
- AES – [www.aesham.com](http://www.aesham.com)
  - Nearest store is in Las Vegas
- Universal Radio – [www.universal-radio.com](http://www.universal-radio.com)
  - Good for new equipment information
- Texas Towers – [www.texastowers.com](http://www.texastowers.com)
- Ebay – many dealers sell here  
[www.ebay.com](http://www.ebay.com)

# Used Sources

- Most new dealers have some used/demo
- [www.eham.net](http://www.eham.net) - extensive ham equipment
- [www.qrz.com](http://www.qrz.com) - almost as much as eham
- [www.ebay.com](http://www.ebay.com) new and used – research first!
- [www.arrl.org](http://www.arrl.org) - has limited classified listings
- When buying used or at auction, **do your research** before bidding. Know what an item is worth and consider ramifications.

# Questions?

- Specific radios?
- Who else to ask?
- Other info sources?
- Intimidated?

# Thanks for your Time....

And welcome to amateur radio!

Enjoy 😊